



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter  
Governor

Dee C. Hansen  
Executive Director

Dianne R. Nielson, Ph.D.  
Division Director

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

July 27, 1988

TO: The Board of Oil, Gas and Mining

THRU: Kenneth E. May, Associate Director, Mining *KEM*

THRU: Lowell P. Braxton, Administrator

FROM: Holland Shepherd, Reclamation Soils Specialist *HWS*

RE: Request for Board Concurrence on Form and Amount of Surety,  
Tenneco Mineral Company, Goldstrike Mine, M/053/005,  
Washington County, Utah

Attached is an Executive Summary and Reclamation Estimate for Tenneco's mine and processing facilities located in Washington County, Utah. Also attached is a Surety Bond agreement with Aetna Casualty and Surety Company, for \$494,000.

## During Operations

1. Tenneco Minerals Company will mine several open pits, within the described area, for gold ore.
2. Gold ore will be crushed and removed to leach pads for cyanide processing.
3. Mining is expected to commence in 1988 and continue through 1992
4. Heap leaches will be operated for one year after mining has ceased.

## Following Operations

1. The leach pads and ponds will be decommissioned, graded, topsoiled, and revegetated.
2. The pit highwalls will not be reclaimed.
3. The sediment pond will be left for livestock and wildlife watering.



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Memorandum - M/053/005  
July 27, 1988

4. The remaining disturbed areas will be graded, topsoiled, and revegetated.
5. Post mine land use will consist of livestock grazing and wildlife habitat.

jb  
attachments  
4/12



## EXECUTIVE SUMMARY

Mine Name: Goldstrike ID. No.: M/053/005  
Operator: Tenneco Minerals Co. County: Washington  
P.O. Box 2650 New/Existing: New  
St. George, Utah 84770 Mineral Ownership: Federal/Private  
Surface Ownership: Federal/Private  
Telephone: (801) 673-1606 Lease No.(s): N/A  
Contact Person: Michael Stairwalt Permit Term: 4 - 5 years  
Life of Mine: 4 1/2 yrs  
Legal Description: T 39 S, R18W, Sections 16, 17, 20 and 21  
Mineral(s) to be Mined: Gold  
Mining Methods: Open Pit Mining - Cyanide heap leach operation  
Acres to be Disturbed: 210  
Present Land Use: Wildlife Habitat  
Postmining Land Use: Wildlife Habitat  
Variances from Reclamation Standards (Rule M-10) Granted: M-10(3), M-10(4),  
M-10(5), M-10(8), M-10(13)

### Soils and Geology:

Soil Description: Undeveloped colluvium, Sandy-loams, developed on steep slopes

pH: 7.96 - 8.11

Special Handling Problems: Rocky outcrops lack salvageable topsoil

Geology Description: Complex geology, consisting of Tertiary, Pennsylvanian and Mississippian sedimentary deposits and Tertiary volcanic rocks.

### Hydrology:

Groundwater Description: Depths varies from 20.5 feet to 208.5 feet. Flow velocities range from .075 to 751 feet per year.

Surface Water Description: One stream, Quail Creek intersects property. Quail Creek is intermittent; part of the Quail Canyon/Arsenic Gulch watershed.

Water Monitoring Plan: N/A

### Ecology:

Vegetation Type(s); Dominant Species: Pinyon - Juniper Community

Percent Surrounding Vegetative Cover: 18%

Wildlife Concerns: Fencing to be used to keep animals away from ponds.

Surface Facilities: Plant, lab, land and solution ponds.

Mining and Reclamation Plan Summary: see attached memo

### Surety:

Amount: \$494,000

Form: Surety Bond

Renewable Term: Good for life of mine



## VII SURETY ESTIMATE

Tenneco Minerals Company estimates it will cost \$493,586 to reclaim the total acreage disturbed through 1992. This estimate covers the reclamation of 190 acres. All but 20 acres of the total plant disturbance will be reclaimed.

All equipment costs include operator and supervision. Dirtwork production rates were calculated using the Caterpillar Performance Handbook (Edition 9), while costs are based on Tenneco's experience during the past year, contractor quotes, Tenneco's wage scale for the St. George area, and Mean's Facilities Cost Data, 1988.

### 1. Decommissioning Leach Pads (40 hours per week for one month)

#### Equipment Costs (Means 1988):

##### 1 - 100 kw Diesel Generator

Rental Rate: \$1,275/month

Operating Cost: \$1,552/month

Total: \$2,827

##### 2 - 560 gpm Pumps

Rental Rate: \$990/month

Operating Cost: \$288/month

Total: \$1,278

#### Labor Costs (Tenneco Wage Scale):

2 - Leach Operators @ \$10.00/hour each: \$3,200

1 - Lead Operator @ \$13.00/hour: \$2,080

#### Lab Fees:

4 - analyses by a certified lab testing  
for EPA acceptable levels of cyanide  
at less than 5 ppm (\$75 each) \$300

\$9,685



2. Well Abandonment

Fill two wells 600' deep, 12" diameter  
with concrete.

34 yd<sup>3</sup> at \$200/yd<sup>3</sup> in place \$6,800

Sever casing two feet below ground and  
fill with compacted native material.

\$200 each well \$400

\$7,200

3. Regrading

Equipment: 2 D9 Dozers @ \$150/hr each

Average Production: 800 yd<sup>3</sup>/hr (50 min/hr) each

Average Cost: \$.19/yd<sup>3</sup>

From Table #6: 564 Dozer hours x \$150/hour - \$84,600

NOTE: Facility foundations will be dozed into ponds prior  
to backfilling.

4. Ripping

Equipment:

1 D8 Ripper @ \$130/hr (50 min/hr)

Average Production:

Production has been broken down into three categories:

Ponds - to be ripped 2' deep

Roads - to be ripped 1' deep

Plant site - to be ripped 1' deep

(includes crushing site and contractor staging area)

Ponds = .23 acre/hr

Roads = .56 acre/hr

Plant site = .53 acre/hr



Average Cost:

Ponds = \$565/acre

Roads = \$232/acre

Plant site = \$245/acre

<u>Area</u>	<u>Acreage</u>	<u>Cost</u>
Haul Roads	40.3	\$ 9,350
Plant Site	11.0	2,695
Ponds	2.0	<u>1,130</u>
Total		\$13,175

5. Culvert Removal

1	12" x 200' Culvert	= \$ 200
1	18" x 70' Culvert	= 105
1	21" x 80' Culvert	= 140
1	30" x 80' Culvert	= 200
1	36" x 70' Culvert	= 210
1	48" x 350' Culvert	= <u>1,400</u>
Total		\$ 2,255

6. Topsoiling

\$184,524

Equipment:	1 - 4,500 gallon water truck	\$50/hr
	2 - D-8 dozers	\$130/hr each
	2 - 32 yard scrapers	<u>\$160/hr each</u>
	=	\$630/hr

Scrapers will be used to haul and place topsoil wherever possible. The two dozers will be used to dump and spread topsoil on side-slopes. When not being used for this purpose, they will be used for other grading.

Topsoil will be placed immediately prior to reseeding, so no seedbed preparation should be necessary.



Topsoil will be placed immediately prior to reseeding, so no seedbed preparation should be necessary.

See Table 5 for cost calculations.

5. Revegetation

A. Drill Seeding

Rangeland Drill  
Diesel Powered Mulcher  
Crimper  
Cat D-4 Tractor  
Fertilizer Spreader

Cost = \$250/acre

Seed Cost = \$180/acre

Total = \$430/acre

B. Hydroseeding

Hydromulcher  
Cat D-4 Tractor

Cost = \$500/acre

Seed Cost = \$180/acre

Total = \$680/acre

30 Acres @ \$680/Acre	\$ 20,400
160 Acres @ \$430/Acre	<u>68,800</u>
Total	\$ 89,200

6. TOTAL RECLAMATION COST \$259,130



See Table 5 for cost calculations.

7. Revegetation

A. Drill Seeding

Rangeland Drill  
Diesel Powered Mulcher  
Crimper  
Cat D-4 Tractor  
Fertilizer Spreader

Cost = \$250/acre

Seed Cost = \$180/acre

Total = \$430/acre

B. Hydroseeding

Hydromulcher  
Cat D-4 Tractor

Cost = \$500/acre

Seed Cost = \$180/acre

Total = \$680/acre

15 Acres @ \$680/Acre	\$ 10,200
175 Acres @ \$430/Acre	<u>75,250</u>
	\$ 85,450

8. Supervision for 17 weeks, 680 hours @ \$20.00/hour (four weeks for leach pad decommissioning; 13 weeks for dirtwork and revegetation)	\$ 13,600
	<u>          </u>

Subtotal for all activities	\$400,489
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10% Contingency	40,050
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Subtotal in 1988 dollars

\$440,540

Subtotal in 1993 dollars (escalation @ 2.3%/year  
for five years)

\$493,586

Proposed bond amount

\$494,000



(August 1985)  
(Noncoal)

Bond Number 61-S-33324-2-88

Permit Number M/053/005

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
(801) 538-5340

## THE MINED LANDS RECLAMATION ACT

## BOND

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The undersigned Tenneco Minerals Company  
as principal, and the Aetna Casualty and Surety Company as  
surety, hereby jointly and severally bind ourselves, our heirs, administrators,  
executors, successors and assigns unto the State of Utah, Division of Oil, Gas  
and Mining in the penal sum of Four hundred and ninety-four thousand-----  
----- dollars (\$ 494,000 ).

The principal estimated in the Mining and Reclamation Plan filed with the  
Division of Oil, Gas and Mining on the 1st day of June  
19 88, that 210 acres of land will be disturbed  
by this mining operation in the State of Utah. A description of the disturbed  
land is attached hereto as Exhibit "A."

When the Division has determined that the principal has satisfactorily  
reclaimed the above-mentioned lands affected by mining in accordance with the  
approved Mining and Reclamation Plan and has faithfully performed all  
requirements of the Mined Land Reclamation Act, and complied with the Rules  
and Regulations adopted in accordance therewith, then this obligation shall be  
void; otherwise it shall remain in full force and effect until the reclamation  
is completed as outlined in the approved Mining and Reclamation Plan.

If the approved plan provides for reclamation of the land affected on a  
piecemeal or cyclic basis, and the land is reclaimed in accordance with such  
plan, then this bond may be reduced periodically.

In the converse, if the plan provides for a gradual increase in the area  
of the land affected or increased reclamation work, then this bond may  
accordingly be increased with the written approval of the surety company.

The Division shall only accept the bond of a surety company if the bond is  
noncancellable by the surety at any time for any reason including, but not  
limited to nonpayment of premium or bankruptcy of the permittee during the  
period of liability.



NOTE: Where one signs by virtue of Power of Attorney for a surety company, such Power of Attorney must be filed with this bond. If the principal is a corporation, the bond shall be executed by its duly authorized officer.

Dated this \_\_\_\_ day of July, 19 88.

State of Utah  
Board of Oil, Gas and Mining

Gregory P. Williams, Chairman

Tenneco Minerals Company  
Principal (Company)

By *D. R. Delling* - President  
Company Officer - Position  
D. R. Delling

Date: July 5, 1988

THE AETNA CASUALTY AND SURETY COMPANY  
Surety (Company)

By *Nora O. Garza*  
Surety Company Officer - Position  
Nora O. Garza, Attorney-in-fact

DATE: July 5, 1988

APPROVED AS TO FORM:

By \_\_\_\_\_  
Assistant Attorney General

COUNTERSIGNED BY: \_\_\_\_\_  
FIRST SECURITY INSURANCE, INC.

BY: DANIEL S. SCHULI

BY: D.J. ROBINSON *D.J. Robinson* (sig)

405 South Main  
Salt Lake City, UT 84110



AFFIDAVIT OF QUALIFICATION

Nora O. Garza, being first duly sworn, on oath deposes and says that he/she is the (officer or agent) Attorney-in-fact of said Surety Company, and that he/she is duly authorized to execute and deliver the foregoing obligations; that said Surety Company is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

(Signed) Nora O. Garza  
Surety Company Officer - Position  
Nora O. Garza, Attorney-in-fact

Subscribed and sworn to before me this 5th day of July, 19 88.

Ellen G. Potter  
Notary Public  
Ellen G. Potter

My Commission Expires: 8-29-88

\_\_\_\_\_, 19\_\_\_\_.



# POWER OF ATTORNEY AND CERTIFICATE OF AUTHORITY OF ATTORNEY(S)-IN-FACT

KNOW ALL MEN BY THESE PRESENTS, THAT THE AETNA CASUALTY AND SURETY COMPANY, a corporation duly organized under the laws of the State of Connecticut, and having its principal office in the City of Hartford, County of Hartford, State of Connecticut, hath made, constituted and appointed, and does by these presents make, constitute and appoint John T. Guldán, D. J. Robinson, Roy G. Fletcher Christopher A. Perrin, Lora L. Cottrell, Scott Palmer, Nora O. Garza or Ellen G. Potter - -

of Denver, Colorado, its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any place within the United States, or, if the following line be filled in, within the area there designated, the following instrument(s):  
by his/her sole signature and act, any and all bonds, recognizances, contracts of Indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any and all consents incident thereto

and to bind THE AETNA CASUALTY AND SURETY COMPANY, thereby as fully and to the same extent as if the same were signed by the duly authorized officers of THE AETNA CASUALTY AND SURETY COMPANY, and all the acts of said Attorney(s)-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This appointment is made under and by authority of the following Standing Resolutions of said Company which Resolutions are now in full force and effect:

VOTED: That each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, may from time to time appoint Resident Vice Presidents, Resident Assistant Secretaries, Attorneys-in-Fact, and Agents to act for and on behalf of the Company and may give any such appointee such authority as his certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors may at any time remove any such appointee and revoke the power and authority given him.

VOTED: That any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the Chairman, the Vice Chairman, the President, an Executive Vice President, a Senior Vice President, a Vice President, an Assistant Vice President or by a Resident Vice President, pursuant to the power prescribed in the certificate of authority of such Resident Vice President, and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary or by a Resident Assistant Secretary, pursuant to the power prescribed in the certificate of authority of such Resident Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact pursuant to the power prescribed in his or their certificate or certificates of authority.

This Power of Attorney and Certificate of Authority is signed and sealed by facsimile under and by authority of the following Standing Resolution voted by the Board of Directors of THE AETNA CASUALTY AND SURETY COMPANY which Resolution is now in full force and effect:

VOTED: That the signature of each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, THE AETNA CASUALTY AND SURETY COMPANY has caused this instrument to be signed by its Assistant Vice President, and its corporate seal to be hereto affixed this 1st day of October, 19 87

State of Connecticut }  
County of Hartford } ss. Hartford



THE AETNA CASUALTY AND SURETY COMPANY  
By Joseph P. Kiernan  
Joseph P. Kiernan  
Assistant Vice President

On this 1st day of October, 19 87, before me personally came JOSEPH P. KIERNAN, Assistant Vice President of THE AETNA CASUALTY AND SURETY COMPANY, the corporation described in and which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; and that he/she executed the said instrument on behalf of the corporation by authority of his/her office under the Standing Resolutions thereof.



George A. Perry, Jr.  
My commission expires March 31, 19 91  
George A. Perry, Jr., Notary Public

## CERTIFICATE

I, the undersigned, Secretary of THE AETNA CASUALTY AND SURETY COMPANY, a stock corporation of the State of Connecticut, DO HEREBY CERTIFY that the foregoing and attached Power of Attorney and Certificate of Authority remains in full force and has not been revoked; and furthermore, that the Standing Resolutions of the Board of Directors, as set forth in the Certificate of Authority, are now in force.

Signed and Sealed at the Home Office of the Company, in the City of Hartford, State of Connecticut. Dated this 5th day of July, 19 88



By John W. Welch  
John W. Welch, Secretary



EXHIBIT "A"

Bond No. 61-S-33324-2-88  
Permit No. M/053/005

Approximately 210 acres of federal and private land in Sections 16, 17, 20 and 21, Township 39 South, Range 18 West, Washington County, Utah.

Please refer to:

Drw. No. GS-011 Rev.01, of the Mining and Reclamation Plan for more complete details of the disturbance areas.